

## CHILD RESISTANT BLISTER PACKAGE

### BACKGROUND OF THE INVENTION

[0001] This invention relates to a child resistant blister package.

[0002] The use of a blister package for items such as pharmaceutical pills is well known. As illustrated in Figures 1 and 2, a conventional blister package 10 includes a blister base 11, perimeter 15, blister cells 20, a product 30 and a backing layer 40. The base 11 and cells 20 are typically formed from a substrate such as a thermo-formed plastic or other suitable material. Typically after a product 30, such as a pill or other suitable product, is placed in the blister cells 20, a backing layer 40 such as foil, paperboard or other suitable material is secured to the base 11 to cover the open area of the blister cells 20. A product 30 is typically removed from a blister cell 20 by applying pressure or other suitable manipulation of the blister cell 20 to create an opening (not shown), such as a tear or rupture in the backing layer 40.

[0003] Typically when the backing layer 40 is strong or rigid, gates (not shown) or other suitable weakened areas are formed in the backing layer 40 in the general vicinity of each blister cells 20. The gates (not shown) assist with removing the product 30 through the backing layer 40. The gate (not shown) makes the backing layer 40 easier to tear or puncture for removing the product 30.

[0004] While conventional blister packages 10 are suitable for many applications there are several deficiencies in their design. While they provide easy removal of the product 30 as described above, they offer little resistance to children opening the package 10 30. Child resistance is a feature that is particularly desired for unit dose pharmaceutical packaging. Various regulations or guidelines are prescribed for making packages child

resistant. In general, a child resistant package must be designed and operationally tested to ensure that the package offers sufficient resistance to children accessing the product. While child resistance is an important feature, however, it is also desirable that a package be designed so that adults can open a package with minimal instructions. Furthermore it is desirable that a package can be opened by adults lacking manual dexterity or strength. Based on at least the above deficiencies in the prior art, what is needed is a child resistant package.

#### SUMMARY OF THE INVENTION

[0005] The invention provides a substantially child resistant blister package. A blister package is aligned with and secured to an aperture panel. The blister cells extend through apertures on the aperture panel. A gate panel is aligned with and secured to the blister package. The gate panel has gates formed in the general vicinity of each blister cell. A tab panel is secured to the gate panel. The tab panel has tabs formed in the general vicinity of each gate. The tab regions of the tab panel are not tightly secured to the gate panel.

#### BRIEF DESCRIPTION OF THE FIGURES

[0006] Other features of the invention will become more apparent in the description below contain herein and can be further understood by reading the accompanying figures, wherein like characters represent like parts throughout the several views.

[0007] Figure 1 is a top plan view of a conventional blister package.

[0008] Figure 2 is an elevation view of Figure 1.

[0009] Figure 3 is a plan view of an aperture panel according to the invention.

- [0010] Figure 4 is a plan view of a blister package secured to the aperture panel according to the invention.
- [0011] Figure 5 is an elevation view of Figure 4.
- [0012] Figure 6 is a plan view of a gate panel according to the invention.
- [0013] Figure 7 is a plan view of a gate panel secured to the backing layer of a blister package according to the invention.
- [0014] Figure 8 is an elevation view of Figure 7.
- [0015] Figure 9 is a plan view of a substrate for forming a tab panel according to the invention.
- [0016] Figure 10 is a side view of Figure 9.
- [0017] Figure 11 is a plan view of a tab panel formed according to the invention..
- [0018] Figure 12 is a plan view of Figure 11 after selectively patterning the coated surface according to the invention
- [0019] Figure 13 a side view of Figure 11.
- [0020] Figure 14 is a plan view of the tab panel secured to Figure 8.
- [0021] Figure 15 is a side elevation view of Figure 14.
- [0022] Figure 16 is a plan view of another embodiment according to the invention.
- [0023] Figure 17 is a side view of Figure 16.
- [0024] Figure 18 is a plan view of another embodiment according to the invention.
- [0025] Figure 19 is a plan view of another embodiment according to the invention.

#### DESCRIPTION OF THE INVENTION

- [0026] Figure 3 illustrates an exemplary aperture panel 120 with exemplary apertures 123 and perimeter 125. The apertures 123 are designed and laid out to support a blister

package such as the conventional blister package illustrated in Figures 1-2. It is to be understood that a wide variety of configurations and shapes for both the apertures 123 and aperture panel 120 are within the scope of the invention.

[0027] Figures 4 and 5 illustrate a blister base 11 supported by the aperture panel 120. The base 11 can also be secured to the aperture panel 120 using any suitable technique including adhesives. For example, the aperture panel 120 could be coated with an adhesive coating and heat and/or press applied to the blister base 11. As illustrated the blister cells 20 extend at least partially through the apertures 123 in the aperture panel 120. Backing layer 40 with perimeter 15 covers blister base 11 on the side opposite the aperture panel 120.

[0028] Figure 6 illustrates an exemplary gate panel 110 with exemplary gates 114 and perimeter 115. In an exemplary method the gates 114 can be formed by partial die cut or other suitable means. The gate boundary 112 is designed to substantially align with the blister cells. The perimeter 115 of the gate panel 110 is illustrated as a straight line; however it is to be understood that the shape of the perimeter 115 could be altered, such as with a non-linear shape, to aid with opening a formed package. It is to be understood that a wide variety of configurations and shapes for the gate panel 110, gates 114, or perimeter 115 are within the scope of the invention.

[0029] Figures 7 and 8 illustrate a gate panel 110 secured to the backing layer 40 of a blister package. The gate panel 110 can be secured to the backing layer 40 using any suitable technique including adhesives. For example, the gate panel 110 could be coated with an adhesive coating and press applied to the backing layer 40.

[0030] Figures 9 and 10 illustrate an exemplary substrate 130 suitable for forming a tab panel 140 (illustrated in Figure 11) according to the invention. An adhesive coating 137, such as easy Seal Plus manufactured by MeadWestvaco Corporation, with perimeter 139 is secured to the substrate 131 with perimeter 135.

[0031] Figure 11 illustrates an exemplary tab panel 140. . The tab panel 140 is illustrated with at least partially detachable tabs 146 with a tab perimeter 142. In an exemplary method the tab perimeter 142 can be formed by partial die cuts or other suitable means. It is to be understood that the tabs 146 could also be fully removable. In addition the perimeter of the tab panel 140 can be shaped (not shown) to aid with opening a formed package. It is to be understood that the tab panel 140, perimeter, tabs 146, and tab perimeters 142 could be configured in numerous shapes and dimensions according to the invention.

[0032] Figures 12 and 13 illustrate the tab panel 140 of Figures 11 with selective areas 150 of the adhesive coating 137 covered. The selective areas 150 have a perimeter 155. In an exemplary method according to the invention, a release agent such as silicon or wax products manufactured by J.M. Fry Company, or other suitable products are secured to the adhesive coating 137 to coat the selective areas 150. The areas 150 are configured to approximate the perimeters 142 for the tabs 146.

[0033] Figures 14 and 15 illustrate the tab panel 140 secured to the gate panel 110. The tab panel 140 can be secured to the gate panel 110 using any suitable technique including adhesives 137. The release layer prevents gates 114 from adhering to the tabs 146 as the tabs are pulled. As illustrated in Figure 15, the release agent in selective areas 150, only allows portions of the tab panel 140, outside of the tab perimeter 142 to secure to the gate

panel 110. This assists the end user with reaching the blister contents 30 by allowing a finger or other mechanical device to more easily access the tabs 146.

[0034] Figures 16 and 17 illustrate another embodiment for creating the separation between the tabs 146 and the gate panel 110. In this embodiment, the adhesive 137 illustrated above in Figures 9 and 10 and the release agent coated areas 150 illustrated in Figures 12 and 13 are eliminated. In their place any suitable adhesive 160 with perimeter 165 is placed on the gate panel 110. As illustrated in Figure 17, the central location of the adhesive 160 prevents the tab panels 146 from adhering to the gate panel 100 thus providing the same benefit described above without the need for the release agent coating.

[0035] Figure 18 illustrates another embodiment according to the invention. Gate panel 210, aperture panel 220, and tab panel 240 are illustrated secured to each other along fold lines 215. In this embodiment, the tab panel 240 may optionally be secured to the gate panel 210 without the use of coatings or other means to space the tab regions from the gate panel 210. After inserting a blister tray, the panels may be folded along fold lines 215 and may be secured to gate panel 210 peripherally outside of the tab areas 246.

[0036] Figure 19 illustrates another embodiment according to the invention. The gate panel 310, aperture panel 320, and tab panel 340 are configured in a different arrangement. The gate panel 310 and the aperture panel 320 are connected to the tab panel 340 along fold lines 315 in the L-shaped blank 300. After inserting blisters 20 in apertures 123, the panels are folded along fold lines 315. Blister base 11 is adhered to aperture panel 320 and to gate panel 310, and gate panel 310 is adhered to tab panel 340.

outside of the tab areas 346. This embodiment illustrates one of several different arrangements that are within the scope of the claimed invention.

[0037] The extended peripheral areas of the aperture panel, the gate panel, and the tab panel may be glued to each other. That mechanically traps the blister base 11 and backing 40 between the aperture and gate panels. The peripheral areas of the tabs may be release coated or otherwise excluded from the adhesive joining of the peripheral areas of the panels

[0038] The various panels described above may be formed from any suitable substrate material to include conventional paperboard grades, for example solid bleached sulfate (SBS) paperboard ranging in weight of about 10 point or greater. An exemplary substrate 100 includes a 12-point SBS board manufactured by MeadWestvaco Corporation. Another exemplary substrate is paperboard coated on one side with Easy Seal Plus ® manufactured by MeadWestvaco Corporation. The substrate 100 may also be a laminated board, a coated board, an unbleached board, or a synthetic paper or a mixture of these depending on the desired appearance of the package. An exemplary substrate has at least one side that is compatible with a printing method. The other side should be suitable for an adhesive coating. Any suitable means for securing the various panels to each other and the blister pack are within the scope of the invention. The various panels should ideally be arranged and secured to each other so that a formed package would have printing on at least some part of the exterior of the package.

[0039] Once given the above disclosure, many other features, modifications or improvements will become apparent to the skilled artisan. Such features, modifications

or improvements are, therefore, considered to be a part of this invention, the scope of which is to be determined by the following claims.